MEDICAL PATHOLOGY AND THERAPEUTICS AND PRACTICAL MEDICINE.

17. *On the Anatomy of the Enlarged Thyroid Gland in Bronchocele.* By Professor Ecker, of Basle.—Of this very important communication, we can only give the principal heads. The author distinguishes two principal varieties of bronchocele, which may occur separately, but are frequently combined. These are (A) *struma vasculosa*, in which the vessels are chiefly concerned; and (B) *struma glandulosa*, which consists essentially in alterations of the closed glandular vesicles.

A. The first of these seems to originate in simple congestion, which may be only temporary; but if it becomes permanent, the capillaries and smaller arteries become aneurismatic and varicose, undergoing dilatation to three or four times their usual diameter. Sometimes the dilated portions seem to become detached from the rest of the vessel, and to form cysts containing blood; a mass of altered nearly colourless blood-corpuscles, adherent to each other, being often found in their interior. When the disorder has advanced to this stage, the gland-vesicles have usually disappeared. Of these changes, hemorrhage and exudation are frequent results. When blood is extravasated, it frequently becomes surrounded by a sort of cyst, as in apoplectic extravasations in the brain, and undergoes changes similar to those occurring in an apoplectic clot; this condition forms one variety of what has been termed *Struma cystica*, which depends (as we shall see) on various pathological changes. Another variety is the result of exudations, which are sometimes diffused, and sometimes collected in masses which become encysted. In the midst of these exudations, the components of which are generally primitive fibres and elementary granules, with blood-corpuscles, we are assured by Professor Ecker, that new vesicles or cysts frequently spring up, similar in all respects to those of the normal gland, but inferior both in size, and in the degree of development of their contents. These *exogenous* vesicles, according to him, constitute the only true hypertrophy of the gland. Another frequent alteration in the vessels is the obstruction and obliteration of the smaller arteries and capillaries, by the deposition of calcareous matter in their coats.

B. The second primitive form primarily consists in the dilatation of the gland-vesicles, apparently from the retention of the secretion, which, through inactivity of the absorbents, is not taken back into the current of the circulation. The vesicles at first are simply enlarged; and are filled with complete cells distended with colloid matter, apparently of an albuminous nature. There are also to be seen more irregular masses of colloid matter, quite transparent, and containing numerous cells and nuclei, sometimes with crystals of cholesterine. As the disease advances, the cell-structure disappears, the walls of the vesicles and the intervening fibrous stroma become absorbed, so that their cavities coalesce, the vessels at the same time becoming obliterated, and thus is produced a third form of *struma cystica.* This change may continue until the whole gland becomes transformed into transparent colloid masses, in which few septa and no blood-vessels are to be seen.

These two primitive forms of bronchocele are frequently combined, so as to produce all sorts of intermediate and complex varieties. Thus, the congestion and dilatation of the vessels may supervene on the glandulose form, and may occupy the intervening parts of the gland between the vesicles; and dilatation of the vesicles may supervene on changes more immediately connected with the vascular system. In either case the result is similar; and it is, therefore, impossible to find a sharp and definite boundary-line between the two primitive forms.—*British and Foreign Medico-Chirurgical Review*, Oct., 1848, from *Zeitschrift für Rationelle Medizin*, 1847, Heft ii; and *Edinb. Monthly Journal*, Aug., 1848.

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18. *On the Healthy and Diseased Structure of Articular Cartilage.* By John Birkett, F.L.S., F.R.C.S.—From the constant influence of attrition upon the articular cartilage, it is evident that it would be rapidly destroyed if it were not endowed with a high capacity of nutrition and reproduction. The increase of cartilage, both in thickness and superficial extent, with the growth of the body, also furnishes evidence of the existence of this power which Mr. Birkett believes to

reside in the nucleated cells enclosed in its blastema. The author assents to the observations of most physiologists, in believing cartilage to be a strictly non-vascular tissue, and he is at some pains to point out its analogies with the epithelial structures, such as epidermis or horn. He considers articular cartilage to hold precisely the same relation to bone as the epidermis to the corion; the analogue of the latter being found in the very hard and peculiar layer of bone which lies immediately beneath the cartilage, between it and the cancelli. He observes, also, that the cancelli may be regarded as representing the subcutaneous cellular layer, having, like it, areolar spaces, which are occupied by a fatty substance, the marrow. The arrangement of the capillary vessels in the articulating ends of bones, is in terminal loops, which pass into projections of the osseous tissue immediately in contact with the hard articular layer alluded to, and which the author regards as analogous to the papillæ of the corion.

The structure of this thin layer which intervenes between the vessels and the cartilage, differs from that of true bone; it is harder and denser; the lacunæ are very regularly disposed, but the canaliculi which characterize the ordinary osseous tissue are absent. Its articular surface is irregular, and is closely fitted by corresponding irregularities of the cartilage. The other surface is equally closely adapted to the papillæ of the osseous tissue, inclosing the looped capillaries, as before stated.

The articular cartilage presents a variation in structure towards the free surface. The cells which, throughout two-thirds of its substance, have no definite arrangement, become flattened out, their long axis assuming the direction of the articular surface. This the author regards as a modification similar to that of epithelium, the flattening of the cells being the effect of the pressure to which they are subjected. It is this flattened layer of cells which has been regarded by writers as a prolongation of the capsular epithelium upon the cartilaginous surface.

The destruction of cartilage in disease commonly proceeds by an infiltration of fatty granules, first into the cells, and ultimately into the hyaline intercellular substance. Thus disorganized and softened, the cartilage is removed by a gradual process of attrition, which the author considers as different from ulceration. [We do not see any good grounds for this distinction. The attrition, ulceration, or molecular disintegration of articular cartilage has been carefully described and figured by Goodsir, (Anat. and Path. Observations, p. 17, and Pl. I. Fig. 13.)]

Along with the process of destruction proceeds the formation of a tissue, containing newly formed fibres and blood vessels, which arises whenever the cartilage is removed. These vessels are connected with, and spring from, those of the fibrous tissues adjoining the joint; they are also frequently connected with those of the subjacent bone; but, in order that this may be the case, it is necessary that the thin articular lamina of bone, as well as the cartilage, shall have been removed by attrition. It is only, therefore, when this layer has been entirely removed that complete *synostosis*, or vascular and organic union of the opposite ends of the bone, can take place through the medium of the newly-formed fibrous tissue and its vessels; and it is commonly observed that up to a late period in the process of anchylosis, portions of the articular layer remain, and prevent the bony union at the joints where they are present.—*Month. Journ.* Nov. from *Guy's Hospital Reports*, Oct. 1848.

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19. *On the Pathological Changes in Mucous Inflammations.* By RUD. VIRCHOW.—All inflammations are to be considered as alterations of the nutritive process, by which the plasma of the blood is thrown out of the vessels in increased quantity. In inflammations of mucous membranes, their anatomical relations cause the exudation of this plasma upon a free surface. The plasma itself may be unchanged in constitution, or its fibrine may be increased in quantity. Differences in the constitution of the plasma determine differences in the result; and thus are established three leading forms of mucous inflammation:

1. *The Catarrhal Form.*—In this the quantity of the blood-plasma is increased, and thrown out on the free surface. The cells (of epithelium) are formed in greater quantity than normal; but they do not reach their normal development, being replaced constantly by an increased succession of new ones. The richer